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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/597,349

07/21/2006

Koji Itoh

59510US007

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32692 7590 10/14/2008  
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EXAMINER

PHAM, LONG

ART UNIT

PAPER NUMBER

2814

NOTIFICATION DATE

DELIVERY MODE

10/14/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com  
LegalDocketing@mmm.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/597,349	<b>Applicant(s)</b> ITOH ET AL.	
	<b>Examiner</b> Long Pham	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 12-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-15 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 16 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>04/23/07</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Drawings***

Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-15 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (AAPA) in combination with Kawate et al. (US pat 6051652).

With respect to claim 12, AAPA teaches a light-emitting diode device comprising a light-emitting diode element, a circuit board, a fluorescent material-containing resin, a lens and a fluorescent material-containing resin sealing frame, wherein said circuit board is adhered to the sealing frame by an adhesive sheet but fails to teach the adhesive sheet comprises of the reaction product of a thermoplastic polymer containing epoxy groups, a thermoplastic polymer which contains no epoxy group, and a compound containing functional groups which are addition reactive with epoxy groups, or a polymerization catalyst which can effect a ring opening polymerization of the epoxy

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groups, and in which said thermoplastic polymer is cross-linked so that its flowability is restrained.

Kawate et al. teach a adhesive sheet or composition which comprises of the reaction product of a thermoplastic polymer containing epoxy groups, a thermoplastic polymer which contains no epoxy group, and a compound containing functional groups which are addition reactive with epoxy groups, or a polymerization catalyst which can effect a ring opening polymerization of the epoxy groups, and in which said thermoplastic polymer is cross-linked so that its flowability is restrained. See col. 2, line 26 to col. 3, line 30.

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to incorporate the teaching of Kawate et al. into the device of AAPA to achieve excellent adhesion. See col. 3, lines 20-30.

With respect to claim 13, Kawate et al. further teach the thermoplastic polymer containing epoxy groups is a polyolefinic copolymer containing epoxy groups. See col. 2, line 26 to col. 3, line 30.

With respect to claim 14, Kawate et al. further teach the thermoplastic polymer containing epoxy groups is obtained by copolymerizing a vinyl groups-containing monomer with an epoxy groups-containing monomer which is copolymerizable with said vinyl groups-containing monomer. See col. 3, line 45 to col. 8, line 15.

With respect to claim 15, Kawate et al. further teach the cross-linking structure of said thermoplastic polymer is formed by an irradiation of an electron ray. See col. 2, line 26 to col. 3, line 30.

With respect to claim 18, AAPA in combination with Kawate et al. fail to teach the range for the flow property of the thermoplastic polymer.

However, given the teaching of AAPA and Kawate et al. it would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal value or range for the range for the flow property of the thermoplastic polymer through routine experimentation and optimization to obtain optimal or desired device performance because the range for the flow property of the thermoplastic polymer is critical or produces any unexpected results and it has been

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held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05.

With respect to claim 19, AAPA further teaches the sealing frame has functions of reflectivity and heat-radiation property.

With respect to claim 20, AAPA further teaches a reflecting plate and a heat-radiation plate or box, wherein said circuit board is adhered by the adhesive sheet to the heat-radiation plate or box, or to the reflecting plate.

#### ***Allowable Subject Matter***

Claims 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on Mon-Frid, 10am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner  
Art Unit 2814

/Long Pham/  
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